

# The future of tourism in Antarctica: challenges for sustainability

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# The Future of Tourism in Antarctica: Challenges for Sustainability

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## Thesis summary

In the last decade, Antarctic tourism has grown rapidly both in terms of volume and diversity. This growth is taking place in a vulnerable part of the world that is largely deprived of human activities and knows no indigenous human population. Antarctica is the only terrestrial land mass on this planet that is not governed by a sovereign state. The Antarctic region is a global common collectively governed by the member countries of the Antarctic Treaty System. In this thesis, it is demonstrated that this configuration poses a range of challenges for sustainability.

### CHAPTER 1

In chapter one the Antarctic tourism case is introduced and contextualised in global tourism developments. A definition and historical overview of tourism development in Antarctica is provided, as well as the main characteristics of Antarctic tourism activity, management and regulation. Based on these characteristics a range of operational and regulatory challenges are identified, such as potential safety risks and environmental impacts, knowledge gaps, effectiveness in decision making and enforceability. It is argued that a strategic vision is needed and knowledge upon which this vision can be based. The objective of this thesis is therefore to identify and assess the main sustainability challenges of Antarctic tourism development and to explore ways to tackle these challenges in the Antarctic governance context. This is done by reaching the following sub-goals:

- Analysing the main driving and constraining factors in the development of Antarctic tourism;
- Identifying and assessing risks and impacts of tourism development for the environment, tourism operations, and other users of the Antarctic;
- Exploring a range of plausible future scenarios and analysing the implications for policy;
- Analysing the perspectives of stakeholders on sustainable Antarctic tourism and policy options.

The sustainable development concept is proposed as theoretical framework in this thesis to identify and discuss these sustainability challenges. Four sustainability challenges are addressed more thoroughly: the global environmental impacts of Antarctic tourism, the development of adventure tourism and the interdependency of stakeholders in dealing with the associated safety risks, the potential impacts of the development of permanent land-based facilities for tourism, and the significance and robustness of the tourism industry self-regulatory regime. Chapter one closes by providing an outline of the structure of this thesis.

### CHAPTER 2

In chapter two the conceptual and methodological framework of this research is presented. It is demonstrated that 'sustainable development' and 'sustainable tourism' are ambiguous and contested notions. Evaluation of tourism in the context of sustainable development therefore depends on the perspective taken, the delimitation of tourism in time and space, and the level of control one can exercise over tourism development. It is argued that the complex and dynamic nature of tourism along with the research objective require a transdisciplinary and integrated research approach. The main characteristics of Integrated Assessment are introduced providing a methodological framework. Finally, methodologies for data collection and analysis are introduced, such as literature survey, data analysis, participatory methods, scenario analysis, in-depth interviews, and positioned in the structure of this thesis.

### CHAPTER 3

Chapter three analyses the main factors that drive and constrain Antarctic tourism development. Based on material elicited at three stakeholder workshops, data analysis and literature review, this chapter presents the Antarctic Tourism Opportunity Spectrum (ATOS) based on the Recreation Opportunity Spectrum (ROS) literature (e.g. Clark and Stankey, 1978). This model is composed of the following factor categories: factors influencing access, other users, attractions, facilities, operational factors, the acceptability of impacts, and regulation and policy. In addition to the internal factors, the model incorporates a contextual level of global factors that may (potentially) influence Antarctic tourism development. The use of the ROS concept, originally designed for the operational level of national park management, is extended to the more strategic level of future tourism trends and challenges. A trend analysis using the ATOS demonstrates that future tourism opportunities vary between larger scale-operations and the continued development of smaller-scale niche products. There is, however, much scope for both industry segments to further diversify and grow.

### CHAPTER 4

The rapid growth and diversification of tourism in Antarctica raises concerns about its effects on the environment. Research and policy-making have, so far, focused on the impacts of tourism on Antarctica's ecosystems at the local scale. The global impacts of tourism have largely been ignored. This chapter presents an inventory of greenhouse gas emissions produced by Antarctic tourism. Results demonstrate that Antarctic tourism ranks among the most energy-intensive segments in the world tourism market. To raise awareness among tourists, tour operators and policy makers, it is argued that greenhouse gas emissions should be included in environmental impact assessments. Improving the global environmental performance of Antarctic tourism would be challenging, as it depends highly on long-haul flights, which goes largely beyond the responsibility of the Antarctic Treaty System. It is argued that the energy-intensity of Antarctic tourism can have major consequences for the industry when global greenhouse gas emission mitigation policies are implemented.

### CHAPTER 5

Chapter five addresses the issue of human safety risks in Antarctic adventure tourism and independent expeditions. Issues of safety risks in Antarctica go beyond passenger safety, as tour operators are highly interdependent on National Antarctic Programmes' and other operators' Search-and-Rescue capabilities in case of emergency. The chapter presents a definition of adventure tourism and an overview of activities that can be classified as such. Based on various Antarctic information databases an analysis of the different risk determinants is made. It is argued that human safety risks and related claims on other parties are not determined by activity type only, but on a range of other factors, such as contingency planning, experience, and location. The various risk determinants suggest a range of policy options for prevention and mitigation of safety risks.

### CHAPTER 6

The potential development of permanent land-based facilities and infrastructures for tourism in Antarctica has received much attention in the tourism regulatory debate at recent ATCMs. The debate focuses on the question whether such development should be allowed in Antarctica. A number of state governments have proposed to prohibit such developments; however, the question has not yet received a clear answer. Chapter six provides a definition of permanent land-based facilities for tourism and gives an overview of current and past land-based tourism facilities in Antarctica. Next, it is discussed whether such facilities are likely to further develop in the near future and an inventory is made of arguments in favour and against such developments. Environmental implications are discussed along with other issues, such as erosion of wilderness values, legal implications due to emerging property rights issues. Based on this information, a number of basic regulatory options are described and discussed, such as regulation of land-based facilities through existing instruments, a full prohibition, and a prohibition with the exemption of areas already in use by NAPs.

## CHAPTER 7

Chapter seven analyses the main strengths and weaknesses of self-regulation in the Antarctic tourism sector. Elinor Ostrom's theory of collective action and especially the design principles for robust management of common pool resources provide a useful framework for this analysis (e.g. Ostrom, 2005). The chapter examines why formal tourism legislation has been limited and describes the self-regulation of tourism management that occurs through the International Association of Antarctica Tour Operators (IAATO). The success of IAATO is attributed to the high degree of organisation in the Antarctic tourism sector, largely because of the perceived benefits of cooperation. The chapter argues that, under current conditions, the Antarctic tourism self-regulatory regime is a robust institution. However, with increasing numbers of tourists and operators the institutional structure may be weakened in the future. Based on Ostrom's theory it is argued that relation of the self-regulatory regime to the formal ATS needs to be strengthened to ensure a sustainable future for Antarctic tourism.

## CHAPTER 8

In chapter eight an integrated scenario analysis is performed for tourism development in Antarctica. During three scenario workshops in the Netherlands and New Zealand, to which a range of Antarctic tourism stakeholders were invited, future scenarios were developed. These scenarios were further enriched with available academic literature and documentation, and linked to the global scenarios of the UNEP Global Environmental Outlook and the Millennium Ecosystem Assessment. The resulting analysis systematically explores four future pathways, based on different assumptions, and identifies a range of potential future developments, such as the development of air links, increasing scale of tourism companies and operations, land-based facility developments, increasing diversity of activities, and the emergence of rogue operators. The scenarios were generally considered plausible to fairly plausible by the participating stakeholders. The scenarios were, however, considered far from desirable. Consequently, a range of policy suggestions was made by the participants to improve the Antarctic regulatory system and increase ATS control over tourism activities. Based on its merits it is concluded that scenario analysis can play an important role in developing a strategic policy vision for tourism in Antarctica.

## CHAPTER 9

Chapter nine addresses the perceived governance aspects for attaining sustainable tourism development in Antarctica. Stakeholder interviews on the development and regulation of tourism in Antarctica are analysed using the adaptive conceptualisation of sustainable tourism of Hunter (1997). The chapter particularly focuses on three interdependent questions: what do we want to achieve (sustainability objective); what can we achieve (regulatory capability); and how can we achieve this (regulatory options)? The results show that although most interviewees seem to strive for high environmental and safety standards, perspectives on acceptable form and shape of tourism diverge widely. Perspectives also deviate on the capability of both the ATS and the self-regulatory regime of the industry to control tourism development in Antarctica, and the preferred policy options. Based on the interviews a range of suggestions are presented for the ATS to steer Antarctic tourism towards sustainability, such as developing a strategic vision on tourism, exploring ways to generate financial means to set up an environmental monitoring programme, carrying out applied research on incentive-based and restrictive policy instruments, and building partnerships with self-regulatory regimes like IAATO.

## CHAPTER 10

Chapter ten summarises the main conclusions coming from this thesis and links these to the main research objectives of this study. The central aim of this thesis is to explore strategic challenges of future Antarctic tourism in the context of sustainable development. A transdisciplinary and integrated research approach is taken to meet this objective. Tourism in Antarctica is developing as a result of a range of factors related to access, other users in the region, attractions and facilities, operational factors, normative criteria for impacts, and regulatory mechanisms. A number of impact areas with a considerable

potential for future change are studied in greater detail, including: the global environmental impacts of tourism in Antarctica; the human safety risks of Antarctic adventure tourism; the legal and environmental implications of the development of permanent land-based facilities and infrastructures for tourism; and the robustness of self-regulation in the Antarctic tourism sector. The general prognosis is that Antarctic tourism will further develop in the future; but the growth rate and form of development are uncertain as a result of these factors and more contextual influences. Through an integrated scenario analysis, based on storylines developed by stakeholders and a range of global scenario studies, different futures were explored for implications. In Antarctica the options for formal regulation of tourism is limited. Stakeholder interviews provide a wide perspective on governance options sustainable tourism development in Antarctica. It is argued that, although the future is uncertain and data sometimes difficult to obtain, the combination of research methods applied in this thesis has shed new light on sustainability challenges of tourism in Antarctica. Research on other impacts areas, management practices, innovative policy instruments, and comparative cases studies are proposed as promising field for future research in this field. Finally, it is argued that Antarctic tourism research could benefit from international coordination of polar tourism research and social sciences research in Antarctica.

